

WORDSYNC™ ADDENDUM

to the SupraDrive Operator's Manual

Congratulations on your purchase of a **SupraDrive™ Hard Card** or **WordSync™ Interface Kit** for your **Amiga® 2000** computer. Your new hard drive system will greatly enhance your computer by providing much better data access time and storage capacity than floppy disks. Directories, icons, and graphics will appear much faster, programs will load quicker, and the Amiga user interface will seem smoother.

WordSync Performance

Of course, one of the most important reasons to get a hard disk is performance, and now you've got it. Your SupraDrive or Supra Interface Kit has been carefully designed and finely tuned by engineers who truly understand the Amiga, and the result is the best hard disk system in the industry. And the key component of this hard disk system is the revolutionary new WordSync SCSI hard disk interface.

The now-common DMA (*Direct Memory Access*) interface was great for a while; faster than anything around, it made possible terrific data transfer rates. But DMA came with problems, too — when a DMA interface was accessed, all other Amiga functions temporarily stopped. Things like serial I/O, graphics, and sound had to wait while the DMA interface did its thing. This caused problems like jerky screen updates, jumpy sound, and lost characters during modem downloads.

But now there's WordSync — a true innovation in SCSI interfaces. Not only is it as fast as DMA, it doesn't have any of the problems. Screens update smoothly. Sound flows easily. Characters don't get *lost* during downloads, they get *transferred* — just like they're supposed to. Multitasking can truly happen because there is no total system shutdown while the DMA interface transfers data. And there's no compounding of problems when you try to do two problem tasks together, like running sound and video at once.

Our engineers designed WordSync to take advantage of every possible speed improvement on the Amiga. Where most SCSI interfaces can only transfer one byte of data into the computer at a time, we transfer two bytes — a full *word* — for a 2X speed improvement. Add this to other speed improvements like automatic data synchronization, and you have the best overall performance available today. And WordSync uses the latest in custom integrated circuits to create a reliable, low-parts-count interface that's economical to build.

The following table contains sample DiskPerf II timings of actual out-of-the-box SupraDrive systems. Please note that different types and sizes of hard disk drives will provide different data transfer rates and may differ from our timings. If you use one of our SupraDrive systems or a comparable hard drive your results should closely match ours. As with any hard drive, performance will degrade slightly as you fill up your hard drive.

SupraDrive 30MB (Seagate ST138N)					
Buffer:	8k	Read:	186,579	Write:	150,830
Buffer:	32k	Read:	244,765	Write:	170,444
Buffer:	256k	Read:	243,402	Write:	183,702
SupraDrive 80MB (Quantum Pro80S)					
Buffer:	8k	Read:	293,225	Write:	191,067
Buffer:	32k	Read:	437,636	Write:	245,913
Buffer:	256k	Read:	508,031	Write:	289,661
<i>Actual DiskPerf2 timings with WordSync</i>					

State-of-the-Art Software

Wonderful hardware is only as good as the software that makes it work. That's why we've spent a lot of time making sure our included software is the best and most useful available. Complex tasks like partitioning your drive and using a different filing system are as simple as selecting a box on the screen — making it much easier for you to enjoy the benefits of owning a hard disk immediately. All Supra software is compatible with **Workbench™ 1.3** and supports **AutoBooting** and the **Fast File System** as well as **Workbench 1.2**. It also supports over 30 drive types and gives you the flexibility to specify drives it doesn't directly support — meaning that virtually every hard disk type available can be used with your Supra interface. Three of the included programs are especially powerful and useful: **SupraFormat™**, **SupraEdit™**, and **CLImate™**.

The first is the hard disk formatting and partitioning program, **SupraFormat**, which lets you divide the hard disk into as many as 30 partitions. Each partition can use any file system supported on the Amiga, including **FFS**, **MS-DOS™**, **Unix**, **Macintosh™**, or anything else that's available. **SupraFormat** also lets you change the name and ID of each partition, indicate which partition to boot from, and specify which partitions to have active. This last feature allows you to “de-activate” partitions you don't need at the moment to free up RAM for other applications.

The second program is **SupraEdit**, which gives you maximum flexibility by providing full access to mount list parameters without actually having to maintain a mount list. Through **SupraEdit**, you can indicate the order in which your system boots your peripheral devices, and you can specify the number of buffers each partition uses and whether they are in chip or fast RAM. You can also specify a file system that **SupraFormat** doesn't already know, edit autobooting code, specify the maximum number of bytes that can be transferred at once, and automatically generate mount list entries if you want them. And if all this power gets you into trouble, the included Supra **Shell scripts** will help get you back on your feet.

The third program is **CLImate**, which makes your computer easier to use by letting you bypass the Amiga's Command Line Interface (**CLI**) and perform many operations without using the keyboard — especially disk/file management, printing, display, and floppy disk formatting.

Advanced, Easy-to-Install Hardware

Whether you buy the complete, ready-to-use Supra Drive system or build your own with the WordSync interface Kit, everything you need is included. When shipped, your SupraDrive is completely formatted and ready to use. All you have to do is plug it into any of the Amiga expansion slots (its slim design only takes one slot), connect the power cable and LED connector to the interface, and turn on your computer. The drive will automatically boot, and the **Workbench** will appear with an icon for each hard disk partition. Then you can use your Supra hard card the same way you would use a regular floppy disk — you can create, modify, save, and delete files; run applications; and do anything else you need to do. Only you'll do it all faster, and without juggling floppy disks!

And building a hard card has never been easier. Simply put a 3-1/2" SCSI drive in the WordSync hard card frame and connect two cables, and you've got your hard card. The cables and screws you need are included, as well as easy-to-follow instructions. Then simply install the hard card and you're ready!

Please carefully follow the instructions in this addendum for installing and getting the most from your drive. With proper care, your Supra Drive/WordSync should give you many years of trouble-free operation. Enjoy!

Installing a WordSync Hard Card

The directions for installing a hard card in the *SupraDrive Operator's Manual* are obsolete. Instead, follow these directions. The rest of the *SupraDrive Operator's Manual* is still accurate; note that references in the manual to the Supra SCSI Interface also apply to the WordSync interface.

Unpacking Your Hard Card

The following items should be included in your SupraDrive package:

- hard card (hard disk mounted on a WordSync interface)
- SupraDrive label
- two floppy disks: **SupraBoot** and **SupraTools**
- the *SupraDrive Operator's Manual* and this addendum

CAUTION — Like any hard disk, the SupraDrive is a very fragile piece of equipment. Be very careful when handling it. Mechanical shock, high or low temperature extremes, excessive moisture, and a sudden drop or jarring should all be avoided.

We recommend saving the SupraDrive's original packing materials in case you need to move your drive.

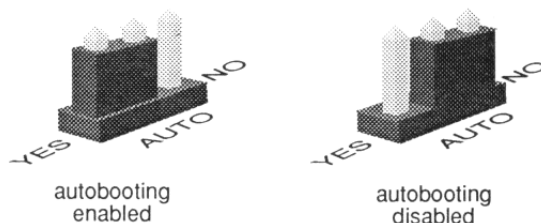
Before using your SupraDrive, please make back-up copies of **SupraBoot** and **SupraTools**. For your convenience, neither disk is copy protected.

Do You Need to Turn Off Autobooting?

All WordSync interfaces are set so your hard disk boots automatically when you turn on your computer. To autoboot, you must also have a Kickstart 1.3 ROM in your computer. If you do not have a Kickstart 1.3 ROM in your computer, you need to disable autobooting or obtain a Kickstart 1.3 ROM from your computer dealer.

To determine if you have a Kickstart 1.3 ROM, boot your Amiga without the hard card installed and without a floppy disk in your floppy drive. If your Amiga asks for Workbench 1.3, you *do* have a Kickstart 1.3 ROM. If it asks for Workbench 1.2, you *don't* have a Kickstart 1.3 ROM.

To disable autobooting, first find the **AUTO** header on the WordSync interface. Then move the rectangular jumper from **YES** to **NO**, as shown below.



Installing the SupraDrive

Before connecting the SupraDrive to your Amiga, make sure your computer is turned off and unplugged. Then work through the next few sections.

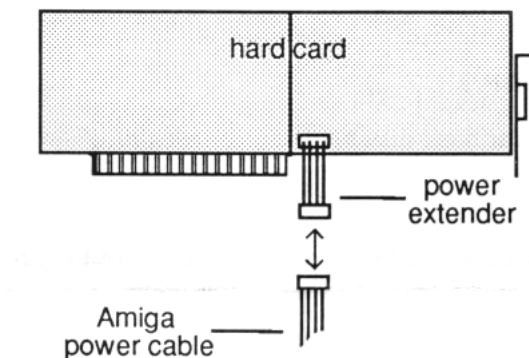
Open the Case

Using a Phillips screwdriver, loosen the five screws that hold the Amiga's case together. There are two screws on each side and one on the back; the one on the back is at the top in the center. Remove the Amiga's top and set it aside.

With the cover removed, you can see the five internal Amiga Expansion Slots and the PC Expansion Slots. (If you're not sure which are which, refer to your computer manual.) The hard card will go in one of the Amiga Expansion Slots. (It only takes one slot.) Refer to the manuals for your other peripherals and cards to determine if they need to be in specific slots or connected in a specific order.

Install the Hard Card

1. On the back of the Amiga are metal plates that cover holes that correspond to the Amiga's internal expansion slots. Remove the plate that lines up with the expansion slot you're going to put the interface in. Save the screw that held the plate in place.
2. Hold the interface over the expansion slot so that its metal plate (like the one you just removed) and SCSI port face the back of the Amiga and the interface's gold edge connector points down. Make sure the Amiga's internal power cable and LED wires are out of the way.
3. Put the interface into the slot and slide it down, holding the cables out of the way as necessary. Push the interface down so the edge connector is snug in the Amiga's slot. Make sure the interface's metal plate goes through the hole in the bottom of the Amiga case. You have to push firmly on the interface to get it in as far as it needs to go; when pushed in far enough, less than 1/4" of gold shows above the expansion slot. Also be sure the interface is level.
4. Use the screw that formerly held in the Amiga's metal plate to connect the interface's metal plate to the Amiga case.
5. Attach the loose end of the power extender to the Amiga power cable, as shown below. (The power extender may be attached to the hard disk in a different place than that shown.)



Connect the LED

Find the wires that arc connected to the **HARD DISK** LED on the left front of the Amiga, and plug these wires into the LED header on the WordSync interface. Make sure the holes in the Amiga's LED wire connector line up with the LED header prongs; the direction of the connector is irrelevant.

Test the Installation

To make sure the installation was successful, boot your system as follows before closing the case.

1. Attach the computer's monitor, power cord, and mouse.
2. Make sure no tools, loose screws, fingers, etc. are near the inside of the computer.
3. Boot your system as described in the *SupraDrive Operator's Manual*.

If your system does not boot properly, turn off your computer make sure all your cables are connected accurately and securely and the hard card is pushed down far enough and level. If necessary, also try the suggestions in the "Troubleshooting" section of the *SupraDrive Operator's Manual*.

Close the Case

Tuck the LED wires inside the Amiga case, replace the Amiga case top, and replace the five screws that hold the top in place. Your SupraDrive is now ready to use.

Apply the SupraDrive Label (Optional)

Included with your SupraDrive is a label that can be placed on the Amiga case to indicate your system includes a SupraDrive. We recommend placing the label on the Amiga case front, to the right of the LEDs. To apply the label, peel the backing off and carefully stick the label onto the Amiga case.

Creating a Hard Disk System from a WordSync Interface & Your Own Hard Disk

If you purchased a hard card, skip this section. Follow the directions in this section if you plan to do one of the following: build a hard card, mount a 3-1/2" or 5-1/4" SCSI hard disk beside or beneath your floppy disk drive, or connect a hard disk to the external SCSI port on the WordSync Interface.

Before You Start

Make sure your computer is turned off and unplugged.

Gather Components

If you are building a hard card, everything you'll need is included with the WordSync Interface.

If you are mounting your hard disk internally, you'll need the following components:

- A 50-pin cable that is long enough, once your interface is in place, to reach between the interface and the 50-pin connector on the hard drive.
- If you plan to mount a 3-1/2" hard disk beneath the floppy disk drive, a 5-1/4" mounting adapter (which you can get from the drive manufacturer).

If you are connecting your hard disk externally, you'll need the following components:

- 3-1/2" or 5-1/4" SCSI hard disk, with controller
- switching power supply that's capable of handling the hard disk and controller
- cables
- metal case to hold the finished system

Do You Need to Terminate Your Interface?

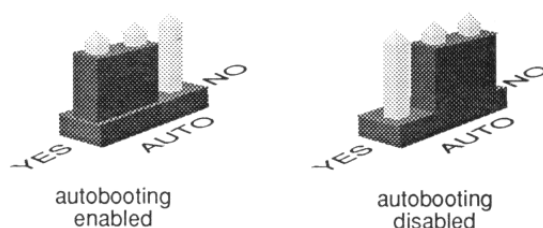
If you are building a hard card, you do not need to "terminate" your interface. If you're using external drives or your 50-pin ribbon cable is longer than 2 feet, you need to terminate your WordSync interface by installing the provided termination chip in the **RP3** socket on the interface board. Make sure that pin 1 on the chip (marked by a notch, a "1" label, or a dot) matches pin 1 on the interface (marked by a small rectangle).

Do You Need to Turn Off Autobooting?

All WordSync interfaces are set to cause your hard disk to boot automatically when you turn on your computer. To autoboot, you must also have a Kickstart 1.3 ROM in your computer. If you do not have a Kickstart 1.3 ROM in your computer, you need to disable autobooting or obtain a Kickstart 1.3 ROM from your computer dealer.

To determine if you have a Kickstart 1.3 ROM, boot your Amiga without the WordSync interface installed and without a floppy disk in your floppy drive. If your Amiga asks for Workbench 1.3, you *do* have a Kickstart 1.3 ROM. If it asks for Workbench 1.2, you *don't* have a Kickstart 1.3 ROM.

To disable autobooting, first find the **AUTO** header on the WordSync interface. Then move the rectangular jumper from **YES** to **NO**, as shown below.



Open the Case

Using a Phillips screwdriver, loosen the five screws that hold the Amiga's case together. There are two screws on each side and one on the back; the one on the back is at the top center. Remove the Amiga's top and set it aside.

With the cover removed, you can see the five internal Amiga Expansion Slots and the PC Expansion Slots. (If you're not sure which are which, refer to your computer manual.) The interface will go in one of the Amiga Expansion Slots. (It only takes one slot.) Refer to the manuals for your other peripherals and cards to determine if they need to be in specific slots or connected in a specific order.

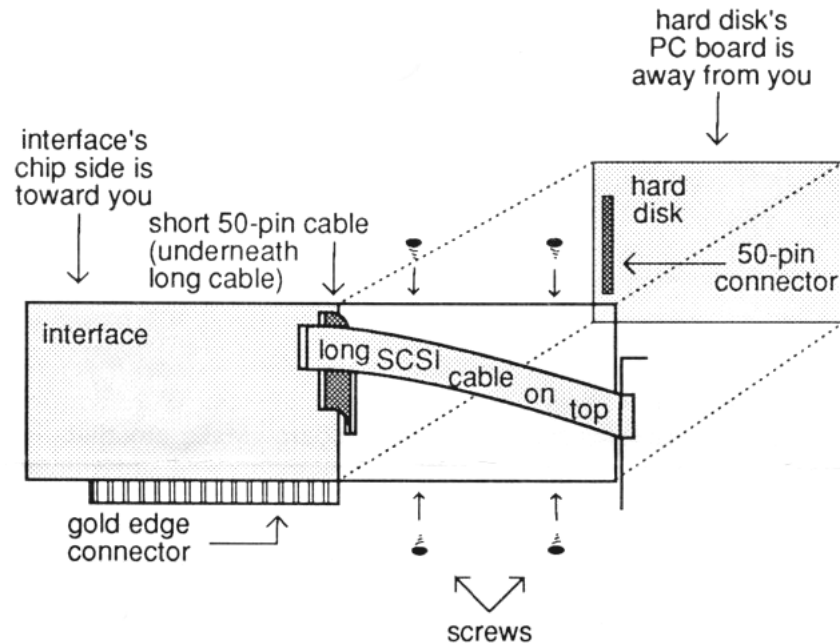
Build the Hard Card

If you are not going to build a hard card, skip this section and jump to the section called “Install the Interface.”

1. Before putting your hard disk in the hard card frame, plug one end of the supplied power extender (shown below) into the corresponding power connector on the hard disk. You'll connect the other end later.



2. Create the hard card as shown and described below.



- a. Position the hard disk and frame as follows:
 - the hard disk's PC board is away from you & the interface's chip side is toward you
 - the 50-pin connectors on the hard disk and interface are as close to one another as possible
 - the hard disk is square with the hard card frame
- b. Slide the hard disk through the back of the hard card frame so the frame's long SCSI cable is on top of the hard disk (as shown). If your hard disk has a cosmetic plastic front piece on it and the front piece gets in the way when you try to put the disk into the hard card frame, remove the front piece. If your hard disk is a bit too large to fit easily into the hard card frame, you may need to loose the frame's screws a little as you put the disk into the frame and then tighten the screws again once the disk is in place. A 5-1/4" hard disk cannot be used in a hard card.

As you slide the disk into the frame, connect the short 50-pin cable from the interface to the 50-pin header on the hard disk.

- c. Use the four supplied screws to secure the hard disk in the frame.

Install the Interface

1. On the back of the Amiga are metal plates that cover holes that correspond to the Amiga's internal expansion slots. Remove the plate that lines up with the expansion slot you're going to put the interface in. Save the screw that held the plate in place.
2. Hold the interface over the expansion slot so that its metal plate (like the one you just removed) and SCSI port face the back of the Amiga and the interface's gold edge connector points down. Make sure the Amiga's internal power cable and LED wires are out of the way.
3. Put the interface into the slot and slide it down, holding the cables out of the way as necessary. Push the interface down so the edge connector is snug in the Amiga's slot. Make sure the interface's metal plate goes through the hole in the bottom of the Amiga case. You have to push firmly on the interface to get it in as far as it needs to go; when pushed in far enough, less than 1/4" of gold shows above the expansion slot. Also be sure the interface is level.
4. Use the screw that held in the Amiga's metal plate to connect the interface's metal plate to the Amiga.

Connect the LED

Find the wires that are connected to the **HARD DISK** LED on the left front of the Amiga, and plug these wires into the LED header on the WordSync interface. Make sure the holes in the Amiga's LED wire connector line up with the LED header prongs; the direction of the connector is irrelevant.

Complete the Installation

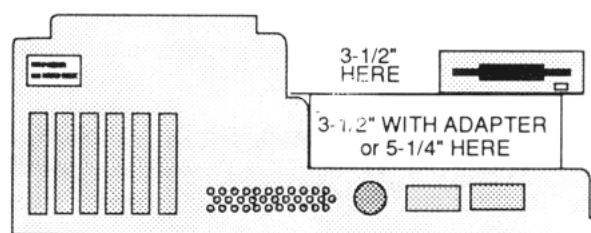
This section provides instructions for completing all three types of installations: hard card, internal (mounting the hard disk beside or beneath the floppy disk), and external. Follow only the parts that apply, and then skip to the next section, "Test the Installation."

Completing a Hard Card Installation

Attach the loose end of the hard card's power extender to the Amiga's multi-colored power cable.

Completing an Internal Installation

Completing an internal installation consists of two parts: mounting the hard disk and connecting the cables. As shown below, a 3-1/2" hard disk can be mounted either next to the floppy disk drive (if you have only one floppy drive) or beneath the floppy disk drive. A 5-1/4" hard disk can be mounted beneath the floppy disk drive. In any of these configurations, the drive must be oriented so its circuit board is down and its 50-pin connector is toward the back of the computer.



Front of Amiga 2000 With Cover Removed

- To mount a 3-1/2" hard disk next to the floppy disk drive, set it in place and then screw the drive to the metal plate it is sitting on. (If necessary, use stand-offs, too.)
- To mount a 3-1/2" hard disk beneath the floppy disk drive, slide the hard disk into the mounting adapter and secure it with screws, and then slide the disk and adapter into place and use screws to secure the adapter in place (the screws go in the sides of the adapter).
- To mount a 5-1/4" hard disk, slide the hard disk into place beneath the floppy disk drive, and then use screws to secure it in place (the screws go in the sides of the drive).

To finish an internal installation, you need to connect two cables: the 50-pin cable and the power cable.

1. Attach the 50-pin cable to the 50-pin connector on the interface. (The connector is shown in the section on building a hard card.) Make sure pin 1 on the cable (indicated by a stripe) matches pin 1 on the interface (which is marked by a 1).
2. Attach the other end of the 50-pin cable to the 50-pin connector on the hard disk, again making sure pin 1 on the cable matches pin 1 on the interface. Note that some hard disks have the pin 1 end of the cable marked with a “2” label instead of a “1”.
3. Attach the Amiga’s multi-colored power cable to the power connector on the hard disk.

Completing an External Installation

Completing an external installation consists of two parts: building the hard disk and connecting the cables. Because of the scope of this manual and the infinite variety of components available, we don’t attempt here to explain *how* to build an external system, but we do provide information that’s specific to the Supra WordSync interface. If you need assistance building your hard drive, please contact your local dealer.

The DB-25 SCSI port on the WordSync interface follows the Macintosh format shown below. On the 25-pin connector, pins 7, 9, 14, 16, 18, and 24 connect to ground. On the 50-pin connector, all odd pins except 25 connect to ground.

Signal	-DB0	-DB1	-DB2	-DB3	-DB4	-DB5	-DB6	-DB7	-DBP	-ATN	-BSY	-ACK	-RST	-MSG	-SEL	-C/D	-REQ	-I/O
SCSI (DB-25) Connector Pin Number	8	21	22	10	23	11	12	13	20	17	6	5	4	2	19	15	1	3
50-Pin Connector Pin Number	2	4	6	8	10	12	14	16	18	32	36	38	40	42	44	46	48	50

Finally, plug the drive’s SCSI cable into the interface’s SCSI port and the drive’s power cable into a power outlet.

Test the Installation & Format Your Drive

To make sure the installation was successful, boot your system as follows before closing the case.

1. Attach the computer’s monitor, power cord, and mouse.
2. Make sure no tools, loose screws, fingers, etc. are near the inside of the computer.
3. Boot your system from the **SupraBoot** floppy disk as described in the *SupraDrive Operator’s Manual*.
4. When a message tells you to run **SupraFormat**, use SupraFormat to format your drive. The *SupraDrive Operator’s Manual* explains how to do this.

If you don’t see the message telling you to run SupraFormat, turn off your computer and make sure all your cables are connected accurately and securely and the hard card is pushed down far enough and level. If necessary, also try the suggestions in the “Troubleshooting” section of the *SupraDrive Operator’s Manual*.

Close the Case

Tuck the LED wires inside the Amiga case, replace the Amiga case top, and replace the five screws that hold the top in place. Your SupraDrive is now ready to use.

Apply the SupraDrive Label (Optional)

Included with your SupraDrive is a label that can be placed on the Amiga case to indicate your system includes a SupraDrive. We recommend placing the label on the Amiga case front, to the right of the LEDs. To apply the label, peel the backing off and carefully stick the label onto the Amiga case.

Amiga Hardware Database

Everything about Amiga hardware...

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<http://amiga.resource.cx>